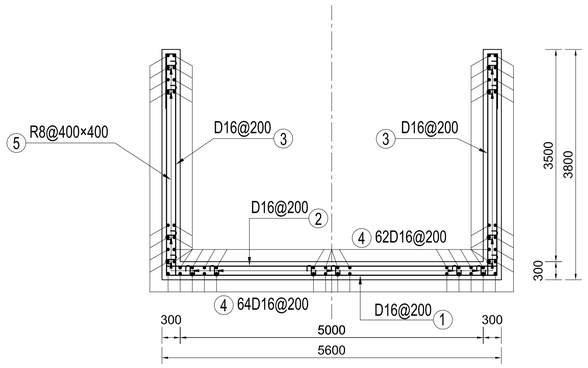
TYPICAL CROSS SECTION D1
(for rock class I&II)

SCALE 1:50



REBAR LIST OF LINING A PER METER

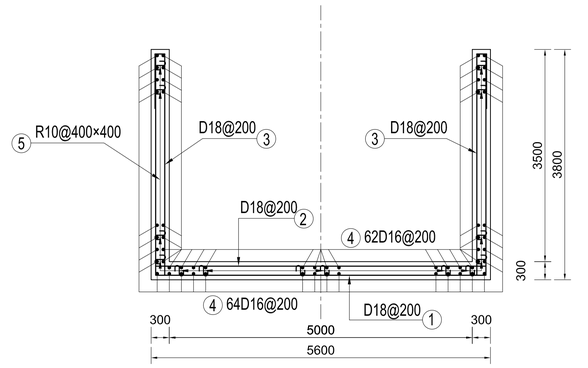
NO	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	NOTES
①	3650 5450 3650	D16	12750	5	63.8	CONNECTED WITH ③
②	420 5450 420	D16	6290	5	31.4	
③	420 3650 150 900	D16	5120	10	51.2	CONNECTED WITH ①
④	1000	D16	1000	126	126.0	
⑤	130 150 130	R8	410	78	32.0	

BOQ OF LINING TYPE D1(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D1	D16	272.4	1.580	430.39	443.03
	R8	32.0	0.395	12.64	
	Concrete: 3.78 m³				

TYPICAL CROSS SECTION D2
(for rock class III)

SCALE 1:50



REBAR LIST OF LINING A PER METER

NO	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	NOTES
①	3650 5450 3650	D18	12750	5	63.8	CONNECTED WITH ③
②	500 5450 500	D18	6450	5	32.3	
③	500 3650 150 1010	D18	5310	10	53.1	CONNECTED WITH ①
④	1000	D16	1000	126	126.0	
⑤	130 150 130	R10	410	78	32.0	

BOQ OF LINING TYPES D2(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D2	D18	149.2	2.000	298.40	517.22
	D16	126.0	1.580	199.08	
	R10	32.0	0.617	19.74	
	Concrete: 3.78 m³				

SCALE:

1:50 0 1 2 3 4 5 (m)

NOTE

1. The set of drawings is reinforcement for lining of diversion tunnel.
2. Elevations,chainages are measured in meter,diameter and spacing of rebar are millimeter, dimensions are in millimeter unless otherwise stated.
3. The thickness of concrete cover is 7.5cm.
4. Concrete faces of construction joints shall be roughed appropriately.
5. Symbol description:
   R denotes round bar, yield strength of the round bar is 280MPa;
   D denotes deformed bar, yield strength of the deformed bar is 500MPa.
7. Anchorage length of rebar shall be not less than 40 times of the reinforcement diameter, and lap length of rebar is 50 times of the reinforcement diameter.

REFERENCE DRAWINGS

UT1-C-010-CVL-DG-42001	Arrangement drawing of diversion tunnel
UT1-C-010-CVL-DG-42004	Outline drawing of inlet structure of diversion tunnel
UT1-C-010-CVL-DG-42006	Outline drawing of diversion tunnel lining

SYMBOL AND LEGEND

FOR APPROVAL

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REV. NO.	DATE	DESCRIPTION	DRAWN	CHKD.	APPD.
0A	18.Mar,2022	FIRST ISSUE	Zhu T.Z.	Lei Y.G.	Han J.B. Luo L.

PROJECT TITLE

Upper Trishuli-1 HEP (216MW)

OWNER

NWEDC NEPAL WATER AND ENERGY DEVELOPMENT CO. PVT.LTD.

OWNER'S ENGINEER

TRACTEBEL ENGIE JADE CONSULT

CONTRACTOR

DOOSAN Doosan Heavy Industries & Construction

DRAWING TITLE

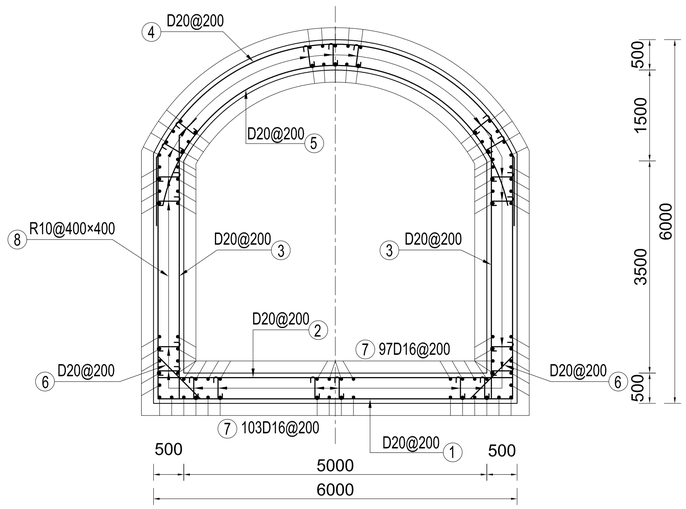
REINFORCEMENT DRAWING OF DIVERSION TUNNEL LINING

INDEX	DRAWING NUMBER	SHEET NO.	REV. NO.
A	UT1-C-010-CVL-DG-42007-1	1 OF 2	0A

A1 (594 x 841 MM)

TYPICAL CROSS SECTION D3
(for rock class IV)

SCALE 1:50



REBAR LIST OF LINING A PER METER

NO	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	NOTES
①	4030 — 5850 — 4030	D20	13910	5	69.5	CONNECTED WITH ④
②	380 — 5850 — 380	D20	6610	5	33.0	
③	380 — 4340 θ=145° — 400	D20	5120	10	51.2	
④	1120, 7260, θ=127.71°, R=325.83, 1120	D20	9500	5	47.5	CONNECTED WITH ①
⑤	800, 6320, θ=124.60°, R=290.83, 800	D20	7920	5	39.6	
⑥	990	D20	990	10	9.9	
⑦	1000	D16	1000	200	200.0	
⑧	130 — 350 — 130	R10	610	120	73.2	

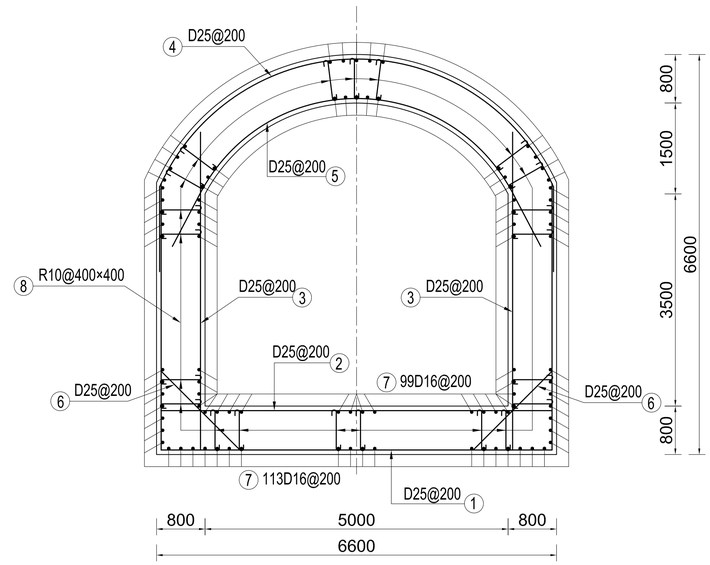
BOQ OF LINING TYPE D3(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D3	D20	250.7	2.470	619.2	980.4
	D16	200.0	1.580	316.0	
	R10	73.2	0.617	45.2	
	Concrete: 9.96 m³				

TYPICAL CROSS SECTION D4
(for intersection of headrace and diversion tunnel)

CHAINAGE D0+158.607-D0+178.607

SCALE 1:50



REBAR LIST OF LINING A PER METER

NO	SHAPE (mm)	DIAMETER (mm)	LENGTH (mm)	NUMBER	TOTAL LENGTH (m)	NOTES
①	1400 — 6450 — 1400	D25	15250	5	76.3	CONNECTED WITH ④
②	280 — 6450 — 280	D25	7010	5	35.0	
③	280 — 5240	D25	5520	10	55.2	
④	1400, 8070, θ=130.00°, R=355.83, 1400	D25	10870	5	54.4	CONNECTED WITH ①
⑤	1000, 6320, θ=124.60°, R=290.83, 1000	D25	8320	5	41.6	
⑥	1840	D25	1840	10	18.4	
⑦	1000	D16	1000	212	212.0	
⑧	130 — 650 — 130	R10	910	120	109.2	

BOQ OF LINING TYPE D4(PER METER)

LINING TYPE	Diameter (mm)	Total length (m)	Unit weight (kg/m)	Total weight (kg)	Summation (kg)
D4	D25	280.9	3.850	1081.5	1483.9
	D16	212.0	1.580	335.0	
	R10	109.2	0.617	67.4	
	Concrete: 16.79 m³				

SCALE:

1:50 0 1 2 3 4 5 (m)

NOTE

1. The set of drawings is reinforcement for lining of diversion tunnel.
2. Elevations,chainages are measured in meter,diameter and spacing of rebar are millimeter, dimensions are in millimeter unless otherwise stated.
3. Other notes please refer to the 1/2.

REFERENCE DRAWINGS

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REINFORCEMENT DRAWING OF DIVERSION TUNNEL LINING

INDEX	DRAWING NUMBER	SHEET NO.	REV. NO.
A	UT1-C-010-CVL-DG-42007-2	2 OF 2	0A

A1 (594 x 841 MM)